Montana Board of Oil and Gas Conservation
Environmental Assessment

Operator: TAQA North USA, Inc.
Well Name/Number: Krowen 14-7
Location: SW NE Section 14 T37N R57E
County: Sheridan**, MT; Field (or Wildcat)** East Flat Lake

Air Quality

(possible concerns)
Long drilling time: No, 10-15 days drilling time.
Unusually deep drilling (high horsepower rig): Heavy duty double derrick drilling rig to drill a Ratcliffe formation single vertical well, 6,627'TD.
Possible H2S gas production: Slight possibility of H2S.
In/near Class I air quality area: No Class I air quality area nearby.
Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:
X Air quality permit (AQB review)
__ Gas plants/pipelines available for sour gas
__ Special equipment/procedures requirements
__ Other:_____
Comments: Existing field infrastructure to handle gas. No concerns.

_____

Water Quality

(possible concerns)
Salt/oil based mud: Yes, long string hole will be drilled with oil based invert drilling fluids. Surface casing hole will be drilled with a freshwater, and freshwater mud system.
High water table: Possible high water table anticipated.
Surface drainage leads to live water: Yes, live water nearby in prairie pothole to the east and northwest from this location.
Water well contamination: None, closest water wells in the area are about 3/8 of a mile to the northwest, about 5/8 of a mile to the north and about 3/4 of a mile to the southeast from this location. Depth of these industrial wells are from 11' to 289'. Surface hole will be drilled with freshwater and freshwater drilling muds. The surface casing setting depth. of 1250' should be below all freshwater zones.
Porous/permeable soils: No, sandy clay soils.
Class I stream drainage: No, Class I stream drainages.

Mitigation:
__ Lined reserve pit
X Adequate surface casing
__ Berms/dykes, re-routed drainage
X Closed mud system
X Off-site disposal of solids/liquids (in approved facility)
X Other: Freshwater drilling fluids will be land applied with surface owner approval. Freshwater drill cuttings will be mixed buried on site with surface owner approval. Oil based drill cuttings will hauled to an approved disposal.

Comments: 1250' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer

Soils/Vegetation/Land Use

(possible concerns)
Steam crossings: None anticipated.
High erosion potential: Small cut, up to 7.3' and small fill, up to 5.3', required.
Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of drillsite will be reclaimed.
Unusually large wellsite: No, large well site 430'X430'
Damage to improvements: Slight, surface use is a cultivated field.
Conflict with existing land use/values: Slight

Mitigation
__ Avoid improvements (topographic tolerance)
__ Exception location requested
X Stockpile topsoil
__ Stream Crossing Permit (other agency review)
X Reclaim unused part of wellsite if productive
__ Special construction methods to enhance reclamation
__ Other _____

Comments: Access will use existing county road, Lone Tree Road and existing well access road. A short road will be constructed into this location, about 433' Surface hole (freshwater) cuttings will be mixed buried on site. Oil based invert mud cuttings will be trucked to an approved waste disposal facility. Oil based drilling fluids will be recycled to the next location or returned to the mud company's recycling facility. Freshwater surface fluids and horizontal freshwater polymer fluids and cuttings will be land applied. No concerns.

Health Hazards/Noise

(possible concerns)
Proximity to public facilities/residences: Residences are, about 3/8 of a mile to the northwest, ¾ of a mile to the southeast and 1.125 miles to the northwest, southwest, south from this location. Cemetery, about 1 mile to the southwest from this location.
Possibility of H2S: Yes, slight.
Size of rig/length of drilling time: Heavy double drilling rig 10 to 15 days drilling time.

Mitigation:
X Proper BOP equipment
__ Topographic sound barriers
__ H2S contingency and/or evacuation plan
__ Special equipment/procedures requirements
__ Other:_____

Comments: Adequate surface casing cemented to surface with working BOP stack should mitigate any problems.

Wildlife/recreation

(possible concerns)
Proximity to sensitive wildlife areas (DFWP identified): None identified.
Proximity to recreation sites: None identified.
Creation of new access to wildlife habitat: No
Conflict with game range/refuge management: No
Threatened or endangered Species: Only species identified as threatened or endangered are the Whooping Crane and Piping Plover. Species of concern is the Sprague's Pipit. NH tracker website lists fifteen (15) species of concern. As follows: Bairds Sparrow, Le Conte's Sparrow, Nelson's Sparrow, Grasshopper Sparrow, Sprague's Pipit, Ferruginous Hawk, Chestnut Collared Longspur, Piping Plover, Black Tern, Sedge Wen, Yellow Rail, Bobolink, Long Bill Curlew, McCowen's Longspur and Smooth Greensnake. The surface location is in a cultivated field.

Mitigation:

__ Avoidance (topographic tolerance/exception)
__ Other agency review (DFWP, federal agencies, DSL)
__ Screening/fencing of pits, drillsite
__ Other:_____

Comments: Private cultivated surface lands. There maybe species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified.

Mitigation
__ avoidance (topographic tolerance, location exception)
__ other agency review (SHPO, DSL, federal agencies)
__ Other:_____

Comments: Private cultivated surface lands. There maybe possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)
__ Substantial effect on tax base
__ Create demand for new governmental services
__ Population increase or relocation
Comments: No concerns. Development oil well in the East Flat Lake Field.

Remarks or Special Concerns for this site

A development Ratcliffe Formation oil well within an existing oil field, East Flat Lake Field

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur, but can be mitigated in a short time.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector

Date: November 27, 2011
Other Persons Contacted:
Montana Bureau of Mines and Geology, Groundwater Information Center website.
_____
(Name and Agency)
Sheridan County water wells _____
(subject discussed)
November 27, 2011
_____
(date)
US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA COUNTIES, Sheridan County
(subject discussed)

November 27, 2011_____
(date)

Montana Natural Heritage Program Website (FWP)
(Name and Agency)
Heritage State Rank= S1, S2, S3, T37N R57E
(subject discussed)

November 27, 2011_____
(date)

If location was inspected before permit approval:
Inspection date: _____
Inspector: _____
Others present during inspection: _____